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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,372	12/21/2001	Jeffrey A. Trogolo	A-035 US	5146

7590 04/23/2003

AGION TECHNOLOGIES  
60 Audubon Road  
Wakefield, MA 01880

EXAMINER

CHOI, FRANK I

ART UNIT	PAPER NUMBER
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1616

DATE MAILED: 04/23/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/032,372

Applicant(s)

TROGOLO ET AL.

Examiner

Frank I Choi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 April 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 and 38-45 is/are pending in the application.
- 4a) Of the above claim(s) 12,41 and 43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-23, 38-40, 42, 44 and 45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Group I claims 1-23 and 38-45 in Paper No. 7 is acknowledged. Examiner further acknowledges Applicant's election of the species silver zeolite, acrylic resin, especially poly(hydroxyethyl-methacrylate), ammonium salt, sodium nitrate and addition polymers, especially ABS, and cancellation of claims 24-37 and 46-50. Examiner is uncertain why Applicant did not list claim 45 as being readable on the elected invention, however, it appears to Examiner that claim 45 would be readable on the elected invention. Claims 12, 41 and 43 are withdrawn as directed to non-elected invention. Claims 1-11, 13-23, 38-40, 42, 44, 45 will be prosecuted as directed to the elected invention.

### ***Claim Objections***

Claim 38 is objected to because of the following informalities: "An" should be "A".  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11, 13-23, 38-40, 42, 44, 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hagiwara et al. (US Pat. 4,775,585) in view of Konagaya et al. (US Pat. 6,013,275), Niira et al. (US Pat. 5,556,699) and Wada et al. (US Pat. 3,981,970).

Hagiwara et al. teach the incorporation of antibacterial silver zeolite particles in polymers such as ABS resins (See entire references, especially, Column 4, lines 44-58).

Konagaya et al. teach that the antibacterial activity of silver zeolite can be increased by incorporating the same in a hydrophilic substance which is an organic compound or a high molecular compound containing at least one of a hydroxyl group, amino group, amide group, carboxyl group or alkali metal salts thereof, such as homopolymers or copolymers of polyacrylic acid, homopolymers of copolymers of polymethacrylic acid or 2-hydroxyethyl methacrylate and that the same can be incorporated into a suitable thermoplastic or thermosetting resin (Column 3, lines 16-26, Column 5, lines 2-13, Column 8, lines 48-51, Column 9, lines 4-6, Column 10, lines 34-36, Column 13, lines 1-14).

Niira et al. teach that antibiotic zeolites containing silver which further incorporate ammonium ions effectively prevent discoloration of resins into which the antibiotic zeolites are incorporated (Column 2, lines 11-23).

Wada et al. teach that the exchange of cations in zeolite is a equilibrium reaction (Column 1, lines 1-48). An exchange reaction process is taught whereby silver ions are introduced to sodium containing zeolite with the result being silver zeolite plus any excess silver ion and sodium ion (Column 3, lines 5-11). An exchange reaction process is taught in which nitric acid is introduced into silver zeolite with the result being hydrogen zeolite, silver nitrate and any excess nitric acid (Column 3, lines 12-15).

The difference between the prior art and the claimed invention is that the prior art does not expressly disclose a silver zeolite which is encapsulated with an acrylic resin, especially poly (hydroxyethyl methacrylate) having an average diameter of about 2000 microns or less,

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optionally further comprising an ammonium salt or sodium nitrate or optionally further incorporated into an addition polymer, especially ABS. However, the prior art amply suggests the same are antibacterial silver zeolites which are incorporated into polymers such as ABS, the combination antibacterial silver zeolites and hydrophilic polymers, such as acrylics, including hydroxyethyl methacrylic, the use of ammonium ions and the exchange of silver with sodium ions and nitric acid are known in the art. As such, it would have been well within the skill of and one of ordinary skill in the art would have been motivated to modify the prior art as above with the expectation that the combination of antibacterial silver zeolites and hydrophilic polymers such as hydroxyethyl methacrylic polymers would result in increased antibacterial activity, that addition of ammonium ions would inhibit discoloration of polymer resins, such as ABS, in which the antibacterial zeolite/hydrophilic polymer is incorporated and that the addition of a salt of sodium ion and nitric acid, i.e. sodium nitrate, would drive the silver ions out of the zeolite thereby increasing the amount of free silver ions available for antibacterial effect.

Therefore, the claimed invention, as a whole, would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention has been collectively taught by the combined teachings of the references.

### Conclusion


A facsimile center has been established in Technology Center 1600. The hours of operation are Monday through Friday, 8:45 AM to 4:45 PM. The telecopier numbers for accessing the facsimile machines are (703) 308-4556 or (703) 305-3592.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Choi whose telephone number is (703) 308-0067. Examiner maintains a flexible schedule. However, Examiner may generally be reached Monday-Friday, 8:00 am – 5:30 pm (EST), except the first Friday of the each biweek which is Examiner's normally scheduled day off.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. José Dees, can be reached on (703) 308-4628. Additionally, Technology Center 1600's Receptionist and Customer Service can be reached at (703) 308-1235 and (703) 308-0198, respectively.

FIC

April 19, 2003



JOHN PAK  
PRIMARY EXAMINER  
GROUP 1600